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There is no time at which the hen is so susceptible to the gallant attentions of her liege lord as just at the end of this cackling period. I have frequently observed this of our barnyard fowls, of guinea hens, both domestic and in the wild state, and of peafowls. In my opinion, the cackle is intended to notify the male bird of the Barkiss-like condition of his mate.

As to the case of the cat tribe, it is so common to see a mother cat in the country bring field-mice, young rabbits, moles, or ground squirrels in to her kittens and watch their playful antics with them, that the conclusions arrived at by Mr. Lees are irresistible. This winter an intelligent house-cat, on a farm where I have been studying winter life in field and woods, led me some distance to where several grain-ricks had stood during the fall. I soon saw that she wanted me to turn over the fence rail floor that still remained there, that she might capture the field-mice living beneath. This I did, while Tabby caught four mice in quick succession. The first one she gulped down at a rapid rate, the second she played with a little while, the third she played with much longer and, half-devoured, left to her eldest son, a full-grown Tom who had accompanied us, and the fourth she barely wounded and also turned over to his tender mercies. In a word, while hunger was a dormant passion, she quickly devoured her prey, after that her instinctive disposition to practise and keep perfect the arts whereby such elusive game is captured was paramount.

Mr. Slater is in error in thinking that a comparatively few now possess the power to "wag the ear." This power is common among the West Indian half-breeds and the Maya and other derivatives of Mexico and Central America, and many whites have the power who hardly realize the fact. It is not uncommon to observe this if one will suddenly say to a companion, "What was that noise?" If Mr. Slater will say this in a semi-startled way, he will notice that in no inconsiderable number of cases there will be a slight instinctive movement of the muscles in question, more or less pronounced. Nor is the ear that Darwin illustrates in his "Descent of Man" as being allied to the pointed type belonging to our Simian relatives as uncommon as many may imagine. It is my observation that this peculiarity of the fold in question is oftenest to be observed in women, and in many of these cases the persistence of the wisdom teeth is also a characteristic. I have in mind two cases of this sort, one of a man, the other of a woman, both residents of one of our leading cities, and their social and intellectual forces. The latter is a remarkable reversion to an earlier type, in ear, in teeth, in length of arm, in painless childbirth, in flexibility of hand-joints, and in other marked characteristics. It appears to me that the ear, like the vermiform appendix, the suspension of the viscera, the position of the orifice to the bladder, and the unprotected condition of certain main arteries, is yet in a transitional state, and not fully adapted to the newer human conditions imposed by the erect position and the artificialities of civilization.

EUGENE MURRAY AARON.

Philadelphia, March 6.

BOOK-REVIEWS.

Die Zukunft des Silbers. By EDUARD SUESS. Vienna and Leipsic, Braumüller. 1892 227 p.

DR. SUESS is eminent as a geologist, and it would be impertinent on the part of the present writer to attempt a criticism, or even an exposition, of his views on the geological and metallurgical conditions which affect the production of the precious metals. Dr. Suess's conclusions are similar to those which he gave to the world some fifteen years ago, in his monograph on the "Future of Gold," published in 1877. He believes that the production of gold is likely to be limited in the future, and will not supply sufficient gold to meet the monetary consumption and the consumption in the arts. He believes also that the production of silver will not progress as rapidly, or that its depreciation will descend as far, as is often supposed. He believes that gold must eventually cease to be used as a standard of value; while the production of silver is likely to continue at a comparatively equable pace, making that metal eventually the basis of the

world's money. International bimetallism, even if it were practicable, would be only a half-way measure, paving the way to the ultimate adoption of the single silver standard.

To this line of reasoning, the economist who, like the present writer, believes that the gold standard works to reasonable satisfaction, would answer in some such fashion as this. If it were true that all exchanges were effected by the actual use of coined money, undoubtedly the monetary supply of gold would not suffice at the present range of prices; and on that supposition the maintenance of the gold standard must be accompanied by a fall in prices, which would in many ways be distressing. But the fact is that in modern communities gold is used but to an insignificant extent as a medium of exchange. The great bulk of the exchanges are effected by credit substitutes of various sorts. Much the most effective of these is the modern machinery of banking, by means of which, especially in countries like the United States and England, an enormous volume of transactions is settled with an insignificant use of coin. So far as retail transactions are concerned, bank notes, government notes, silver as a subsidiary coin, do the greater part of the money work in all civilized communities. Gold, therefore, acts in the main simply as a measure of value or a standard of value; something in terms of which the values of commodities are expressed, and into which all other forms of currency are convertible. It performs its function very largely by being held as a reserve in the great central depositories, serving simply to sustain and regulate the circulating medium. The evidence does not indicate that the supply of gold is insufficient for this purpose. On the contrary, large accumulations of gold have been made in recent years by civilized countries; by Germany in 1873, by the United States in 1879, by Italy in 1883, by Austria in 1892-3, without causing, in the opinion of the present writer, any appreciable difficulties. It is not impossible that in the distant future the supply of gold will prove insufficient, and that some change may be made by the great civilized countries in their standard of value. But such a change for the visible future is highly improbable. The drift of the time is toward the gold standard in all the great countries; with a constant development and use of credit substitutes, but with gold as the sole basis. So far as we can see into the future, this policy will work no harm, and will conduce greatly to stability and convenience in the circulating medium.

So far as silver is concerned, it is undoubtedly true that the method of occurrence of silver ores makes it probable that each individual find will soon be exhausted. The great bonanzas, of which the Comstock lode was the first in the United States, have soon given out, and the great and rapid increase in the production of silver has been due to successive lucky finds. Geologically speaking, therefore, the enormous increase in production, which has taken place in the last twenty-five years, may be regarded as temporary. But historically speaking, it is impossible to say that these finds will not continue for a period of great length in human history. The hard fact is that the production of silver has increased with extraordinary rapidity in the last twenty years, and that as yet there are no signs of relaxation. If this process continues, the decline in the value of silver cannot be checked. If it ceases, the price of silver in terms of gold is likely, at best, to remain where it now is. In either case, there is no ground for supposing that silver will come to be used on the same terms as gold by civilized nations, still less that it is likely to displace gold, as Dr. Suess predicts.

F. W. TAUSSIG.

Harvard University, Cambridge, Mass.

How to Manage the Dynamo. By S. R. BOTTONE. New York, Macmillan & Co.

THIS little book is meant, as its author tells us, for steam engineers who are called upon to take care of dynamos, without having any previous training or knowledge. As this class is a rather large one, there is no doubt but that there will be a considerable demand.

The book is very clearly written, and contains just about all that the men for whose benefit the author is writing will require

to know. There are some sins of omission and commission, however. Among the former may be mentioned the fact that the alternating-current dynamo is not touched upon, or very briefly. No instructions are given as to what should be done in case, when a dynamo arrives, it is found to be connected for running in the opposite way to which the foundations, etc., necessitate its turning. Instructions for reversing the connections of a series machine when it fails to start up or under compounds would also be of use. The writer has had on many occasions to travel several hundred miles to remedy these simple troubles. A warning about the necessity and method of keeping armatures and fields free from moisture when lying boxed up, might also be added with benefit. Among the latter may be mentioned the direction to lay an armature on waste (page 22), as the latter is often full of pieces of iron, etc., which might ruin the insulation. Sand-paper is preferable to emery for polishing of commutators, as the latter frequently contains particles of iron. The remedy proposed on page 30 for a shunt dynamo which will not pick up is impracticable.

Altogether, this is a very useful and clear little book.

R. A. F.

Electrical Experiments. By G. E. BONNEY. New York, Whitaker & Co.

THIS book is a collection of simple experiments with magnets, induction coils, influence machines, and plating baths. Mr. Bonney is already favorably known through his books on the making of induction coils, electroplating, etc., and this volume is quite up to the others.

Manual of Irrigation Engineering. By H. M. WILSON, C.E. New York, J. Wiley & Sons. 1893. 351 p. 8°. \$4.

WHILE text-books and elementary treatises on the general subject are threatening to flood the market and the profession, the promise of an overplus of good treatises on special branches of

engineering, by competent specialists, is by no means serious. Good works of the latter class are always welcome to the average practitioner, and this seems to be one of the kind which is likely to prove both useful and welcome. It is written by an author who has had experience in America, Europe, and India, and contains the fruits of both original investigation and discreet compilation. The book is prepared mainly with reference to the needs of the engineer having charge of work of this kind in the western portion of the United States, and includes accounts of the current methods there in use, as well as of such systems observed abroad as are most likely to prove useful in this country. The collection and distribution of water, but not its application to crops and to its minor uses, constitute the subject chosen for treatment. Much new material is here published, especially relating to earth-dams and elevation of water by pumping. The author makes application, in a very sensible manner, of the principle, too little recognized by writers on engineering subjects, that, while no hesitation should ever be felt in regard to the use of mathematics in the development of the subject in hand, its use should always be confined to the minimum quantity, and the most elementary methods, consistent with the effective accomplishment of the purpose in view. The average reader, even though a professional and a practitioner, does not purchase his library with the view of admiring the scholarship, the pedantry, or even the genius of authors.

The importance of this subject may be realized when it is stated, as by this writer, that 25,000,000 of acres are made fruitful in India alone by irrigation; in Egypt there are about 6,000,000, and in Europe about 5,000,000 acres. In the United States, where this process of conquering nature has but just begun, are now about 4,000,000 acres of irrigated lands. Thus, about 40,000,000 acres of soil are made to produce crops: land which would otherwise have remained desert.

The book is well and freely illustrated, and its typography is that always seen in the technical works of its publishers. It is

CALENDAR OF SOCIETIES.

Biological Society, Washington.

Mar. 11.—Frank Baker, Recent Discoveries in the Nervous System; Vernon Bailey, The Burrow of the Five-Toed Kangaroo-Rat; E. M. Hasbrouck, The Breeding of the Bald Eagle near Mount Vernon (with exhibition of eggs).

New York Academy of Sciences, Biological Section.

Feb. 13.—A paper on the "Functions of the Internal Ear" was presented by Dr. F. S. Lee, based upon study of dog-fish. The results of experiments were given, showing that the semi-circular canals are sensory organs for dynamical (rotational) equilibrium, otolithic parts for statical (resting) equilibrium. Each canal appreciates movement in its own plane, and by a definite functional combination of canals all possible rotational movements are mediated. This theory explains compensating movements of eyes, fins, and trunk. The method of experiment was that of sectioning the branches of the acoustic nerve and stimulation (by rotational movements) of the swimming fish. In a paper by Bashford Dean, on the Marine Laboratories of Europe, a series of views were shown of the stations of Naples, Banyuls, Roscoff, Plymouth, Arcachon, the Helder, and St. Andrew's. H. F. Osborn described the foot of Artionyx, the new member of the order Ancylopoda Cope. It is distinguished from Chalicotherium by the character of aule and pes, which present a marked resemblance to the Artiodactyla, while Chalicotherium

represents these structures as found in Perissodactyla. Both genera are ungulate in aule joint, but the phalanges terminate in claws, and, in view of the double parallelism between these two forms and the two subdivisions of Ungulates, it was suggested to divide the Ancylopoda into the Artionychia and Perissonychia.

Society of Natural History, Boston.

Mar. 15.—H. C. Ernst, Cultures of a New Pathogenic Bacillus, Illustrating Methods of Isolation; Warren Upham, Deflected Glacial Striae in Somerville, Notes on the Tertiary Strata of the Fishing Banks Between Cape Cod and Newfoundland.

Reading Matter Notices.

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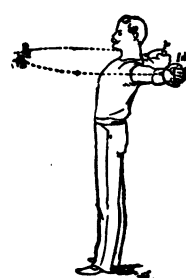
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